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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,728	03/24/2004	Sivakumar Muthuswamy	CM01524LD01	8181

7590 03/22/2006

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EXAMINER

RUTHKOSKY, MARK

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/809,728

Applicant(s)

MUTHUSWAMY ET AL.

Examiner

Mark Ruthkosky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 24 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4 and 5 is/are rejected.
- 7) ☐ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Information Disclosure Statement

No information disclosure statement has been filed in the application. Applicant is reminded of their duty to disclose.

Drawings

The drawings filed on 3/24/2004 have been approved.

Specification

The disclosure is objected to because of the following informalities. Page three of the specification is blank with the exception of the page number. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2 and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Lussey et al. (US 6,495,069.)

The instant claims are to a method of operating a fuel cell, comprising the steps of activating a membrane electrode assembly by supplying reactants to the membrane electrode assembly; and selectively limiting amount of electrons collected from localized areas of the membrane electrode assembly surface.

Lussey et al. (US 6,495,069) teaches a method of operating a fuel cell, comprising the steps of activating a membrane electrode assembly by supplying reactants to the membrane electrode assembly; and selectively limiting amount of electrons collected from localized areas of the membrane electrode assembly surface. An electrically conductive, non-linear positive temperature coefficient polymer material is taught to be of interest in the design of fuel cells (col. 7, lines 51-end) to regulate current flow when the polymer composite that has a low electrical resistance that switches to a high resistance state in response to heat and current (col. 8, lines 1-25.) Fuel cells inherently activate the fuel cell membrane electrode assembly by supplying reactants to the membrane electrode assembly. This step is inherently required, by definition, for a fuel cell to function as a fuel cell. The step of selectively limiting amount of electrons collected from localized areas of the membrane electrode assembly surface is equivalent to regulating current flow taught in Lussey, as current flow is from the electrochemical reaction that occurs at the anode and cathode of the membrane electrode assembly. The polymer taught in the reference is a porous, z-axis conductive material. The selective limitation of electrons is taught to be due to the expansion of the polymer upon heating (col. 7, line 50-col. 8, line 8.) The material changes from a first resistivity to a more restive state when a change, such as in the

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temperature, occurs (col. 1, lines 35-end.) The polymer material must at least be in electrical contact with the MEA in order to perform the function described in Lussey. Thus, the claims are anticipated.

Allowable Subject Matter

Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The instant claims are to a method of operating a fuel cell, comprising the steps of activating a membrane electrode assembly by supplying reactants to the membrane electrode assembly; and selectively limiting amount of electrons collected from localized areas of the membrane electrode assembly surface. A porous, Z-axis, electrically conductive, non-linear positive temperature coefficient material is located together and in contact with the membrane electrode assembly to selectively limit the amount of electrons collected from localized area of the membrane electrode assembly. The prior art does not teach a fuel cell wherein the porous, Z-axis, electrically conductive, non-linear positive temperature coefficient material is located together and in intimate contact with one of the sides the membrane electrode assembly as described in applicant's invention.

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Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky

Primary Patent Examiner

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3/17/2006